

In the Claims:

1-49. (canceled)

50. (new) Transmitter circuitry for a code division multiple access system comprising:

A. diversity control circuitry having a Doppler control signal input, a handoff signal input and a control output signal having a first state and a second state;

B. a space time transmit diversity circuit having a control input connected with the control output signal of the diversity control circuitry, a symbol input adapted to receive a series of symbol signals, a first antenna output, and a second antenna output, the diversity circuitry, in response to the control output signal being in the first state, alternately connecting the symbol signals on the symbol input to the first antenna output and the second antenna output, and the diversity circuitry, in response to the control output signal being in the second state, effecting space time transmit diversity by producing a symbol on the first antenna output and a transformed symbol on the second antenna output.

51. (new) The transmitter circuitry of claim 50 including receiver circuitry receiving midamble symbols from mobile units in the same cell as the transmitter circuitry, in which the Doppler control signal is determined by comparing sequential midamble symbols from the mobile units in the same cell as the transmitter circuitry and a high Doppler rate results in the control circuitry outputting a control output signal in the second state.

52. (new) The transmitter circuitry of claim 50 including receiver circuitry receiving signals from mobile units in the same cell as the transmitter circuitry indicating received signal strength from surrounding base stations, and when a base station handoff is required, the control circuitry outputs a control output signal in the second state.

53. (new) The transmitter circuitry of claim 50 in which the diversity circuitry effects space time transmit diversity by producing a first symbol S_1 from a first time on the first antenna output at a third time and a transformed second symbol $-S_2^*$ from a second time after the first time on the second antenna output at the third time, and producing a second symbol S_2 from the second time on the first antenna output at a fourth time after the third time and a transformed first symbol S^* on the second antenna output at the fourth time.

54. (new) Transmitter circuitry for a code division multiple access system comprising:

- A. a first set of data symbol leads;
- B. a second set of data symbol leads;
- C. space time transmit diversity circuits, each diversity circuit having an input connected with one lead of the first set of data symbol leads and having a first output and a second output;
- D. multiplier circuits, each multiplier circuit having an input and an output, a first set of multiplier circuits having each of their inputs connected with the first output of one diversity circuit, a second set of multiplier circuits having each of their inputs connected with the second output of one diversity circuit, and a third set of multiplier circuits having each of their inputs connected with one of the second set of data symbol leads;
- E. first summation circuitry having plural inputs connected with the outputs of the first and third sets of multiplier circuits and an output;
- F. a first antenna connected with the output of the first summation circuitry;
- G. second summation circuitry having plural inputs connected with the outputs of the second set of multiplier circuits and an output; and
- H. a second antenna connected with the output of the second summation circuitry.

55. (new) The transmitter circuitry of claim 54 in which each diversity circuit effects space time transmit diversity by producing, from a symbol received on its input, the symbol on the first output and a transformed symbol on the second output.

56. (new) The transmitter circuitry of claim 54 in which each multiplier circuit multiplies a signal on its input by a specific user code.

57. (new) The transmitter circuitry of claim 54 in which the multiplier circuit of the first set that is connected to the first output of one diversity circuit and the multiplier of the second set that is connected to the second output of the one diversity circuit multiply the signals on their inputs by a same specific user code.